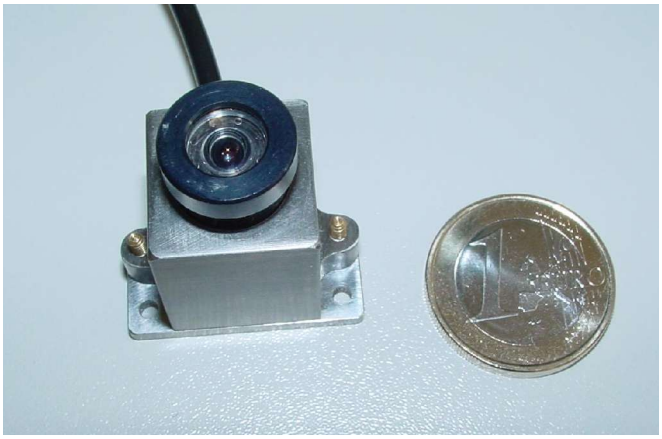
MR compatible camera

User manual



This manual describes the essential parts of the MR compatible camera with fixed focal length lens and illustrates its operation.

System components

- Camera
- Filter box
- Camera connector cable
- Power supply
- Cinch cable
- BNC/Cinch adapter
- Earth ground cable for provisional installation

A. Video camera and lens

Figure 1 shows the camera housing and the connected lens.

The lens is connected to the standard 12mm **mount** in the housing.

- The **focus adjustment** is done by screwing in and out the lens. Care should be taken not to screw out the lens too far, as the lens may fall out of the thread.

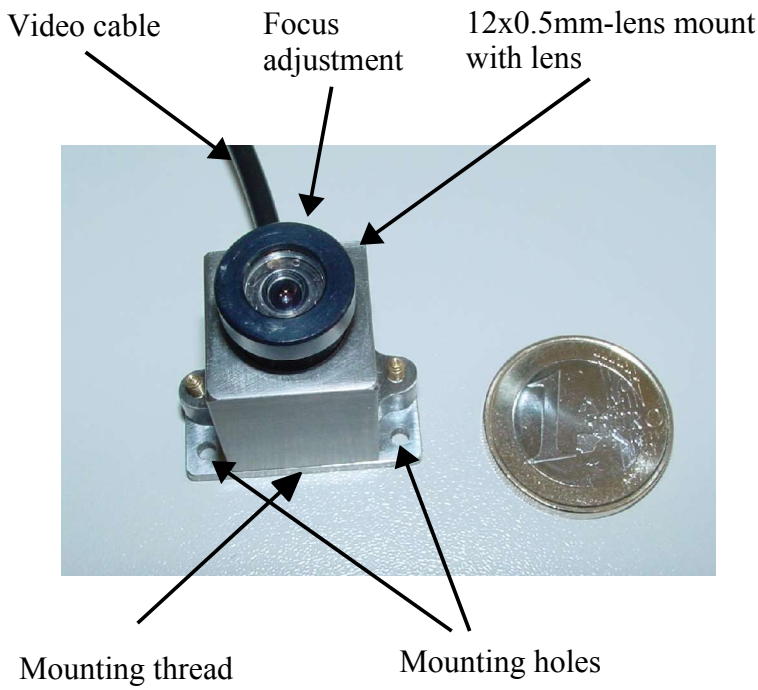


Figure 1:
Video camera and lens

The camera is connected to the filter box via a video cable which must be plugged to the **video connector** of the camera cable.

It can be mounted directly to any suitable object via the two 2mm holes in the camera backplate.

B. Camera mount with ball joint (optional)

An other possibility is to mount it to the camera mount (tilting plate) via the M2 mounting thread in the camera housing (see figure 2). In delivery state the camera is already mounted to the tilting plate. If you remount the tilting plate, take care on the tiny 2 mm thread. **The ball joint should be connected to the camera only without the tilting plate!** So before remounting the ball pin to the camera the tilting plate should be disassembled to separate the ball pin. You have to screw out the 4 brass screws with a screwdriver. Screw the ball pin into the camera back with care or you will damage the 1.6mm threads. After the pin is mounted, you can fixate it with pliers carefully and then reassemble the tilting plate again.

The plate consists of two parts. One part (wall mount) is to be mounted somewhere, then the two parts can be pushed together. For quick removal the camera can be pulled out the wall mount.

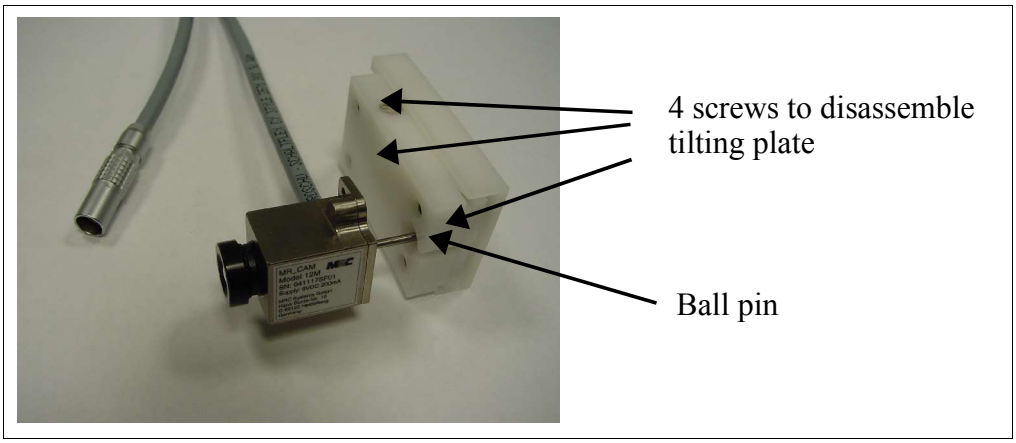


Figure 2:

Application sample: Camera mounted on tilting plate

C. Connection of camera to filter box

The camera is connected to a filter box via the camera connector cable, which includes power and signal lines as well as shielding.

The filter box includes a low pass filter that suppresses frequencies higher than 1MHz with over 100 dB. This filter prevents damage and interferences caused by the high frequency signals of the MR scanner.

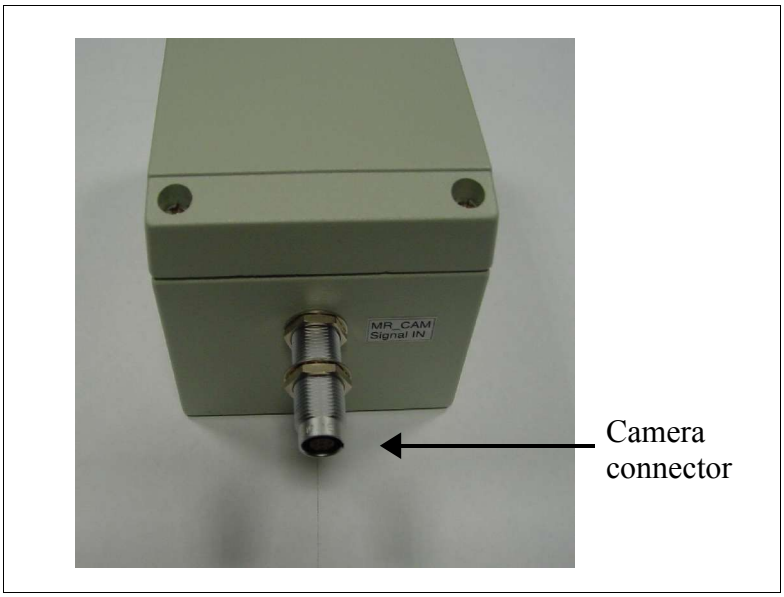


Figure 3: Filter box (front side)

D. Filter box installation

The filter box should be attached to the panel board of the MR cabinet. It must be placed outside the MR cabinet. The video cable that connects the filter box with the camera must be brought into the MR cabinet via a feed-through hole.

For a permanent installation, the filter box should be screwed onto the panel board by means of the feed through **camera connector**. Figure 4 illustrates the recommended configuration:

- A 12 mm through hole in the panel board is required.
- The **camera connector** is guided through this hole.
- The camera connector provides the ground connection to the shielding of the MR cabinet.

For temporary use, the camera cable can be brought into the MR cabinet by other means, e.g. through a service entry hole. In this case, an additional grounding cable should be used to connect the camera connector to the shield panel grounding.

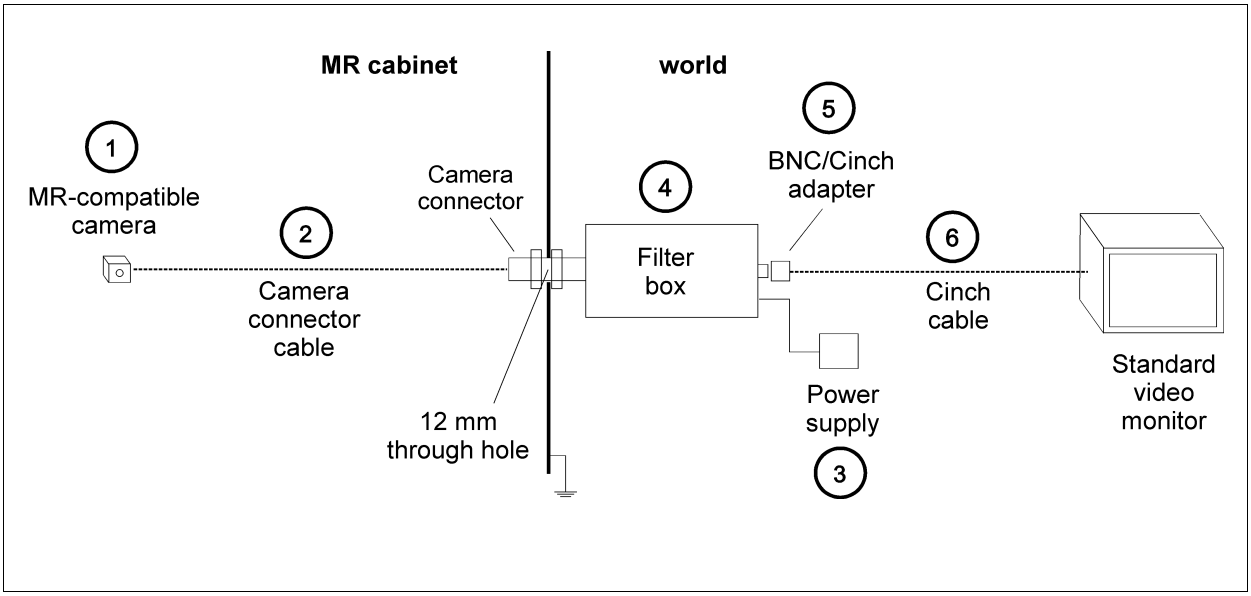


Figure 4: Device and cable configuration

E. Connection of power supply

The power for the camera is transmitted via the camera connector cable. Therefore, the power supply is connected to the filter box (see figure 5). The required power values are 200 mA, 6-12V.

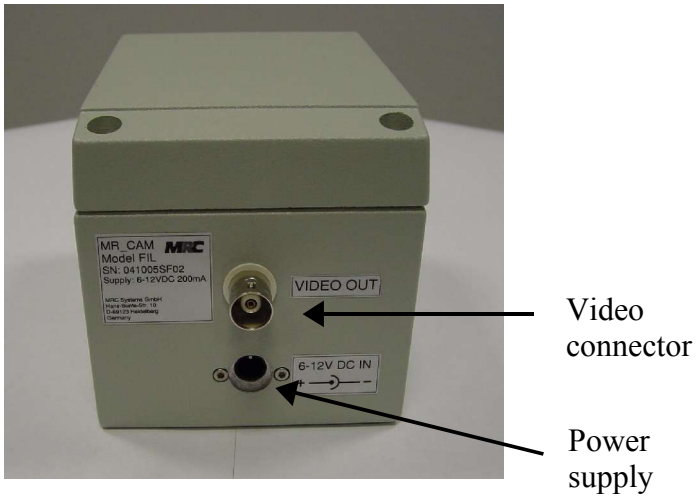


Figure 5: Filter box (rear side)

F. Connection to TV set / VCR / frame grabber

A BNC/Cinch adapter and a standard Cinch cable are used to transfer the video output signal to a TV set, VCR, frame grabber, or video card. The Cinch cable is plugged via the adapter to the video connector at the filter box (see figure 5).

The video signal can be directly viewed with a TV or recorded with a VCR. To view and store the images with a PC, the Cinch cable must be connected to a frame grabber or video card within the PC. Any software for analog video viewing should be appropriate to process the signals.

G. Technical Data

Sensor Type:	B/W CMOS Sensor 1/3 inch
Output:	EIA(NTSC) video signal with 60Hz half frame rate
Output impedance:	75Ω
Sensitivity:	0.2Lux for f#1.2
Connector for lens:	12x0.5mm Mount.
Supply:	6 VDC, 200mA
Weight:	22g
Size:	28 mm x 18 mm; height ≈ 23 mm + lens
Mounting Thread:	M1.6, max 2mm depth

Lens:

Type:	fixed focal length with fixed aperture, exchangeable
Mount:	12x0.5mm
Focal length:	6mm
Aperture:	2.4
Sensor format:	1/3 inch
Minimal object distance:	50mm

H. Contact

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